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Attorney Docket No.: 200314632-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Zhichen XU et al.	**Confirmation No.:**	6116
Serial No.:	10/767,075	**Examiner:**	Hieu T. HOANG
Filed:	January 30, 2004	**Group Art Unit:**	2452

Title: DETERMINING LOCATION INFORMATION FOR A NODE IN A NETWORK USING AT LEAST ONE LOCAL LANDMARK NODE

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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REPLY BRIEF - PATENTS

Sir:

The Appellants respectfully submit this Reply Brief in response to the Examiner's Answer mailed on April 8, 2010, and thus, this Reply Brief is timely filed within two months of the Examiner's Answer.

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(1) Status of Claims

Claims 15, 16, 18, and 28-30 are canceled.

Claims 1-14, 17, 19-27, and 31 are pending and stand rejected.

Claims 1-14, 17, 19-27, and 31 are appealed.

(2) Grounds of Rejection to be Reviewed on Appeal

A. Whether claims 1-20 were properly rejected under 35 U.S.C. §101.

B. Whether claims 1, 10, 11, 17, 19, 21, and 25 were properly rejected under 35 U.S.C. §112, second paragraph.

C. Whether claims 1-6, 8-11, 14, 19-27, and 31 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,937,569 to Sarkar et al. (hereinafter "Sarkar") in view of article "Building Topology-Aware Overlays using Global Soft-State" by Xu et al. (hereinafter "Xu").

D. Whether claims 7, 12, 13, and 17 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu, and in further view of US Published Patent Application No. 2001/0034793 to Madruga et al. (hereinafter "Madruga").

(3) Arguments

A. The rejection of claims 1-20 under 35 U.S.C. §101 should be reversed.

- Claims 1-18:

Claims 1-18 were rejected under 35 U.S.C. §101 because, according to the Examiner, the method in independent claim 1 is broad enough that the claim could be completely performed mentally, verbally, or without a machine. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

In addition, in the "Response to Argument" section of the Examiner's Answer, the Examiner asserts that "[d]etermining distances can be done by a person on paper (with the nodes and landmarks drawn out on paper) or mentally without a machine" (See *Examiner's Answer*, bottom of page 12 and top of page 13). However, that assertion is respectfully traversed because determining the distances by drawing the nodes and landmarks on paper or mentally may at best describe the steps of determining but will not actually determine the distances from one computer node to another computer node in a computer network recited in claims 1-18. Only a computer system can actually calculate or determine these distances in the computer network. Furthermore, the claims 1-18 are inherently tied to a machine s Therefore, the steps of determining the first and second distances recited in claims 1-18 are inherently performed by a computer system, and not performed mentally or without a machine.

- Claims 19-20:

Claims 19-20 were rejected under 35 U.S.C. §101 for being directed to non-statutory subject matter because, as asserted by the Examiner, the means for carrying out the steps in the claim body of claim 19 are read as software modules. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

In addition, in the "Response to Argument" section of the Examiner's Answer, the Examiner asserts that limitations in the preamble are not given weight (*Examiner's Answer*, bottom of page 13). This assertion is respectfully traversed. As stated in the MPEP §2111.02(I), "Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation" (See *MPEP Section 2111.02, Part I*) Here, the preamble of claim 19 recites "A computer system node" which is a computer according to the specification, at least on page 18, lines 1-4. According to the MPEP §2111.02(I), the "computer system node" recited in the preamble of claim 19 limits the structure of the claim to a computer system node, and thus, must be treated as a claim limitation. Therefore, the "computer system node" in the preamble of claim 19 must be given weight.

The Examiner also asserts that because the word "comprising" in the preamble is open-ended, even if the computer system node in the preamble is hardware, the body of the claim may still only include software embodiments (See *Examiner's Answer*, top of page 14). That assertion is respectfully traversed because, as discussed above, claim 19 is directed to a computer system node which is a machine, and not software. Thus, even if the body of claim 19 includes only software, claim 19 as a whole is still directed to a machine, and not software. In other

words, even if a machine comprises software, it is still a machine. Thus, it is respectfully submitted that claim 19 is statutory under 35 U.S.C. 101.

B. The rejection of claims 1, 10, 11, 17, 19, 21 and 25 under 35 U.S.C. §112, 2nd paragraph should be reversed.

- Claims 1, 19, 21 and 25:

Claims 1, 19, 21 and 25 were rejected under 35 U.S.C. 112, second paragraph because, according to the Examiner, "the set of landmark nodes" in the phrase "the *set of landmark nodes* are located in routing paths between the node and the global landmark nodes" is unclear as to which set of landmark nodes (local or global) Appellants refer to. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

In addition, in the "Response to Argument" section of the Examiner's Answer, the Examiner argues that "the word 'local' is clearly omitted from the claims" (See *Examiner's Answer*, page 14). The Appellants agree that "the set of landmark nodes" clearly refers to "a local set of local landmark nodes" recited in the beginning of the paragraph in the claim. Furthermore, because the Examiner admits that the word "local" is **clearly** omitted, it is evident that the claim is not vague and indefinite because the Examiner understands that "the set of landmark nodes" clearly refers to "a local set of local landmark nodes". Thus, the rejection should be reversed.

- Claims 10-11 and 17:

Claims 10-11 and 17 were rejected under 35 U.S.C. §112, second paragraph. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

In the "Response to Argument" section of the Examiner's Answer, the Examiner repeats the rejections of claims 10-11 and 17 without adding any new arguments (See *Examiner's Answer*, pages 14-15 and page 5). Therefore, no replies are added herein.

C. The rejection of claims 1-6, 8-11, 14, 19-27, and 31 under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu should be reversed.

- **Claims 1-6, 8-11, 14, 19-27, and 31:**

Claims 1-6, 8-11, 14, 19-27, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

In addition, regarding the claimed feature "the set of landmark nodes are located in routing paths between the node and the global landmark nodes," in the "Response to Argument" section of the Examiner's Answer, the Examiner asserts,

> Given the broadest reasonable interpretation, the limitation is read as "the set of **global** landmark nodes are located in routing paths between the node and the global landmark nodes."

(See *Examiner's Answer*, page 15). However, that assertion is respectfully traversed because such an interpretation is not "reasonable." A reasonable interpretation would be "the set of **local** landmark nodes are located in routing paths between the node and the global landmark nodes"

because even the Examiner admits that the word "local" was clearly omitted, and that the word "global" could not be given any weight in examination (See *Examiner's Answer*, page 14). Thus, the word "global" should not be unreasonably inserted in that phrase in the claims.

In the "Response to Argument" section, the Examiner also asserts that in Sarkar the landmark 160 is in a routing path from node 60 to the landmark 170, for example, path 60-160-190-140-170, path 60-160-190-120-170, and path 60-160-110-180-170 (See *Examiner's Answer*, bottom of page 15 and top of page 16). However, that assertion is respectfully traversed. It appears the Examiner uses the arrows in Fig. 2 of Sarkar as an alleged teaching of the claimed paths. However, the arrows shown in Fig. 2 do not identify the routing paths from endpoint 60 to the landmark 170. As discussed in the Appeal Brief, the routing path between the endpoint 60 and the landmark 170 is through the router 180 because Sarkar discloses in col. 6, lines 36-39 that the endpoint 60 is **required** to use the communication path 530 (from endpoint 60 to router 180) and path 540 (from router 180 to landmark 170) to determine the distance from the endpoint 60 to the landmark 170. Therefore, the paths 60-160-190-140-170, 60-160-190-120-170, and 60-160-110-180-170 asserted by the Examiner are not the routing paths between the endpoint 60 and the landmark 170 in Sarkar.

In the "Response to Argument" section, the Examiner also asserts that the claimed feature "the set of **local** landmark nodes are located in routing paths between the node and the global landmark nodes" does not add any patentable distinction to the process of determining location information of the node (See *Examiner's Answer*, page 16, lines 3-11). That assertion is respectfully traversed. Every feature in the body of a claim has patentable weight. Although the

prior art may have taught other methods for determining location information for a computer system node, the claimed invention in the present application specifically requires that the set of local landmark nodes be in the routing paths between the node and the global landmark nodes (See, for example, local nodes LL1-LL4 in Fig. 1 of the present invention). Therefore, the Examiner must give patentable weight for that claimed feature. It is unreasonable for the Examiner to just dismiss a feature in the claims because the Examiner could not find support for that feature in the prior art references, and then allege that such feature has no patentable distinction. If the prior art references fail to teach a claimed feature under 35 U.S.C. §102, and the feature is not obvious in view of the prior art references under 35 U.S.C. §103, then the Examiner must allow the claims instead of dismissing the feature as having no patentable distinction.

In the "Response to Argument" section, the Examiner also asserts that "a set" can have a range from zero to a positive number of members, that "a set" does not have to have more than two members, and the same rationale applies to distances (See *Examiner's Answer*, page 16). However, those assertions are respectfully traversed. The claims specifically recite "first distances" and "second distances." Thus, the claims recite a plurality of first distances and a plurality of second distances. The Examiner cannot just ignore the plurality of first distances and plurality of second distances, or purposefully interpret plural "distances" as a singular "distance" to reject the claims. It appears the Examiner just makes up meanings in order to reject the claims without valid bases. As discussed on pages 15-16 of the Appeal Brief, the claims recite a plurality of first distances and a plurality of second distances, and as a result, the set of global

(and local) nodes includes a plurality of global (and local) landmark nodes. Sarkar clearly fails to teach or suggest a plurality of global landmark nodes and a plurality of local landmark nodes. Instead, Sarkar discloses only one local landmark node 160 and one global landmark node 170.

The Examiner also asserts that in the specification, page 3, paragraph 1, the Appellants recite that the set can have one member (See *Examiner's Answer*, page 16). However, that assertion is respectfully traversed because the specification, page 3, paragraph 1, does not recite that. Specifically, paragraph 1 on page 3 recites,

> Landmark clustering is a known location and distance estimation technique for determining a distance to a node in a network. Landmark clustering was introduced for routing in large networks. A node's physical location in a network is estimated by determining the node's distance to a common set of landmark nodes in the network. Landmark clustering assumes that if two nodes have similar distances (e.g., measured latencies) to the landmark nodes, the two nodes are likely to be close to each other. Routers store the estimated physical locations of the nodes and use the position information for routing to the closest node.

Thus, paragraph 1 on page 3 describes that the physical location of a node in a network can be estimated by determining the distance from the node to a common set of landmark nodes in the network. The "common set" of landmark nodes clearly includes at least two landmark nodes, and not one landmark node. Accordingly, the "common set" of landmark nodes in paragraph 1 on page 3 does not disclose that a set can have one member, as asserted by the Examiner.

Regarding the claimed feature "determining location information for the node based on the first distances and the second distances," in the "Response to Argument" section, the Examiner asserts that "given the broadness of the limitation, it can mean comparing the distances

and assign node location based on the location of the landmark that has shortest distance to the node, taught Xu as above" (See *Examiner's Answer*, page 18). However, that interpretation still fails to address the issue that Xu uses only the local distances of the nodes within a landmark clustering to locate the closest node to a particular landmark. As a result, Xu still fails to teach or suggest using any global distances (i.e., the first distances recited in the claims) or distances across multiple landmark clusters to locate the closest node. Thus, Xu fails to cure the deficiencies of Sarkar.

For at least the foregoing reasons, the Examiner has failed to establish that independent claim 1 is *prima facie* obvious in view of the combined disclosures contained in Sarkar and Xu. Therefore, reversal of the rejection of claims 1-6, 8-11, 14, 19-27, and 31 and allowance of these claims are respectfully requested.

D. The rejection of claims 7, 12, 13, and 17 under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu and Madruga should be reversed.

Claims 7, 12, 13, and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sarkar in view of Xu and Madruga. This rejection should be reversed for the same reasons set forth in the Appeal Brief filed January 12, 2010.

(4) Conclusion

For at least the reasons given above, the rejection of claims 1-14, 17, 19-27, and 31 should be reversed and these claims allowed.

Please grant any required extensions of time and charge any fees due in connection with this Appeal Brief to deposit account no. 08-2025.

Respectfully submitted,

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